

ENERGY CREDIT CARD SYSTEM

Cross-Reference to Related Application

This application claims the benefit of and priority from United States provisional application Serial No. 60/463,754 filed April 17, 2003.

Background and Brief Summary of Invention

The need for renewable energy sources in the United States is monumental and is growing more acute. The present invention provides a system wherein consumers install solar systems, for example, and deliver excess electric power to a shared power grid. The consumer receives "energy credits" in exchange for excess power delivered to the grid. Those "energy credits" may be redeemed by the customer in several ways. For example, the customer may redeem the credits by purchasing gasoline or heating oil or mass transit tickets. The gasoline, heating oil or mass transit tickets are paid for by an Energy Credit Card Company in one embodiment of the invention. In a second embodiment, the payment for fuel or tickets is made by the operator of the electric power grid.

A primary object of the invention is to provide an energy credit system to stimulate and expand the use of renewable energy sources by consumers.

Another object of the invention is to provide an energy credit system wherein consumers who deliver excess power to the power grid receive credits which may be redeemed by the purchase of fuel, power or mass transit tickets.

Other objects and advantages of the invention will become apparent from the following description and drawings wherein:

Brief Description of the Drawings

Fig. 1 is a flowchart of the first embodiment of the invention wherein an Energy Credit Card Company records energy credits and pays the fuel provider or mass transit system for credits redeemed by the consumer; and

1 Figs. 2-4 are schematic flowcharts of a second embodiment wherein the operator of the
2 power grid records the energy credits earned by consumers and pays the fuel provider or
3 mass transit system for purchases made by consumers with earned energy credits.

4 Detailed Description of the Drawings

5 The purpose of this invention is to promote a virtually limitless production of electricity
6 (or any other form of energy) by encouraging consumers to acquire solar power systems (or
7 other renewable energy source) and to give the consumer credit in other forms of energy
8 consumed or credits for mass transit fares and to reduce the payback period for the
9 investment in the photovoltaic (or other energy producing) system.

10 Two separate embodiments are disclosed herein. The first embodiment (Fig. 1)
11 includes an Energy Credit Card Company (ECCC) which acts as an energy brokerage house.
12 The second embodiment (Figs. 2-4) does not require an ECCC, but rather expands the
13 responsibilities of the operator of the electric power grid as described below.

14 The invention includes a device which records the amount of energy produced by a
15 photovoltaic (or other) system, the amounts used by the consumer and the amount of excess
16 energy or power flowing from or back into the electricity grid. Currently, the energy distributor
17 sends a "meter reader" to the residence or business and records the energy used every
18 month. This invention would allow for the installation of an additional meter located in such a
19 way as to measure the excess energy produced by the photovoltaic system and transferred
20 to the shared electric power grid. The meter reader would record both and in one embodiment
21 the electricity distributor would send the results to the ECCC. An improvement over manually
22 reading each set of meters is by replacing the meters with a remote energy-recording device
23 (RERD). The device measures the energy by multiplying the measured current by the
24 measured voltage at each of the three points. The amount of energy produced or consumed
25 by the user and the photovoltaic system is determined by the following simple formula:

26 Photovoltaic Energy Produced – Energy used = Excess power returned to grid

1 Since the energy consumed by the public is time dependent, such as peak and off-peak
2 times, the RERD measures and records on a continuous basis. For instance, during peak
3 times, the RERD would record perhaps every 5 to 10 minutes and during the night, the RERD
4 would record every 30 to 60 minutes.

5 The RERD and accompanying software interfaces with a standard computer to

- 6 1. Allow the user to graphically see the benefits in real time
- 7 2. To configure the RERD
- 8 3. To send energy usage data to the ECCC
- 9 4. To correspond with the ECCC
- 10 5. Check the users energy credit balance
- 11 6. To set up ways to receive credit from other energy providers

12 For those users who are not computer literate or do not want their computer tied to the
13 RERD directly, configuration would be accomplished via the telephone menu system. The user
14 could call at any time to reconfigure the RERD. When the RERD called in to send the daily
15 data, the new configuration would be sent to the RERD.

16 In addition, a simpler net metering system measuring the excess power generated and
17 supplied to the power grid could be installed. More specifically, instead of the more complex
18 power-measuring device described earlier, a single remote net metering device could be
19 installed. It would still send power consumed or produced information to the RERD at intervals
20 set by the consumer.

21 The novel business method aspect of this invention in one embodiment is the
22 relationship between the consumer, the ECCC and the oil companies or energy providers.
23 After the consumer sets up the equipment and an account with the ECCC, the RERD will
24 begin sending records to the ECCC. The ECCC will then issue a credit. This credit can be in
25 any number of forms such as:

- 1 1. Cash value
- 2 2. Energy equivalents in other forms of energy such as gasoline or propane or
- 3 natural gas

4 The ECCC will issue these credits on a percentage basis. For instance, if the user
5 produces \$100.00 of energy, the ECCC would issue a \$70.00 credit and pocket \$30.00 profit.
6 The actual profit might follow current credit card company guidelines. Since the ECCC is tied
7 to an energy brokerage house, the ECCC can issue credit to the consumer in those various
8 ways mentioned above.

9 Fig. 1 is a flowchart illustrating the above. Fig. 1 illustrates a specific example of the
10 invention wherein a consumer installs a solar panel system at his home. The energy is
11 described in terms of "Energy Units" or simply EU. When the solar panel system generates
12 more electricity (i.e. 160 EU) than used by the consumer's home electrical needs (i.e. 100 EU),
13 the excess electricity (60 EU) is measured and provided to the electrical grid. According to the
14 present invention, 50 EU of the 60 EU excess electricity provided to the grid is "credited" to the
15 account of the specific consumer. The credited amount is in effect an energy credit card
16 usable by the consumer to purchase non-electrical forms of energy, i.e., natural gas, gasoline,
17 heating oil, etc. The remaining 10 EU of the excess energy is transferred as profit to the
18 Energy Credit Card Company (ECCC).

19 The ECCS is designed to allow the user to conduct his/her life without any extra effort.
20 If the user wished to use the Excess Energy Credit (EEC) for gasoline, the user simply
21 charges the gasoline to his/her bank credit card. The charges are sent from the gas station
22 to the credit card company along with a tag identifying it as an approved fuel. Before sending
23 the user the monthly statement, the credit card company checks the ECCC for any credits the
24 user may have. If credits do exist, the ECCC issues those credits to the credit card company.
25 The balance is paid by the user.

26

1 Energy companies such as Texaco, Shell, Chevron or BP may offer credit cards with
2 more incentives. The ECCS should be setup to handle these types of transactions. These
3 types of incentives would be the result of barter negotiations with each company.

4 Fig. 2 illustrates the first step of a second embodiment of the invention. Three
5 consumers A, B and C are connected to a shared power grid. A and B have solar power
6 renewable energy sources, but consumer A delivering 100 EU of excess power to the grid, B
7 delivering 200 EU, and C consuming 500 EU from the grid. The operator of the grid records
8 these energy transfers. A and B have redeemable energy credits.

9 Fig. 3 illustrates consumer A purchasing 50 EU worth of gasoline, to be paid for with
10 A's accumulated energy credits. Consumer B is shown in Fig. 3 to be purchasing 100 EU
11 worth of mass transit tickets, to be paid for with B's accumulated energy credits.

12 Fig. 4 illustrates payment for the purchases made by A and B. The operator of the
13 power grid pays the gasoline provider for A's purchase of 50 EU of gasoline. A's energy credit
14 balance is reduced from +100 EU to +50 EU. The operator of the power grid also is shown
15 paying for B's purchase of 100 EU worth of mass transit tickets. B's energy credit balance is
16 shown as reduced from +200 EU to +100 EU. C's account remains constant at -500 EU until
17 C pays his power bill to the operator of the grid.

18 The foregoing description of the invention has been presented for purposes of
19 illustration and description and is not intended to be exhaustive or to limit the invention to the
20 precise form disclosed. Modifications and variations are possible in light of the above
21 teaching. The embodiments were chosen and described to best explain the principles of the
22 invention and its practical application to thereby enable others skilled in the art to best use the
23 invention in various embodiments and with various modifications suited to the particular use
24 contemplated. The scope of the invention is to be defined by the following claims.